

comprises [having] a generally arcuate cross-section and [each groove laying in a respective plane generally perpendicular to said central axis, each of said outer grooves having] a generally constant radius measured from said central axis, and wherein the radius of [whereby] each said outer groove [has a] is greater [radius] than the radius of each adjacent outer groove closer to said first end;

a female connector [coaxially aligned with said male connector and] having an annular recess adapted to receive and fit around said [male connector, said female connector having a first end and] outer surface and a plurality of inner annular grooves formed on said annular recess concentric with said central axis, said recess forming a shoulder within said female connector adjacent said first end, wherein each said inner groove comprises [each having] a generally arcuate cross-section and [laying in a respective plane generally perpendicular to said central axis] a generally constant radius measured from said central axis, and wherein the radius of each said inner groove is greater than the radius of each adjacent inner groove closer to said shoulder, said inner grooves each corresponding to one of said outer grooves and forming therewith an arcuate race; and

a plurality of ball bearings received in each race to facilitate relative rotation of said male and female connectors about said central axis.

Please cancel claim 11.

~~32 Sub 1/2/5 (Amended). A bearing assembly according to claim [9] 1, wherein~~

5.12
~~each said inner groove has a section located at the apex of the~~
~~generally arcuate cross-section comprising a straight line segment.~~

5.13
~~§ 101 (Twice Amended).~~ A bearing race assembly for use in a swivel joint comprising:

62 cont. 9
a pair of opposed tube-shaped connecting members each having a central axis coaxial with the other and each having a plurality of outer annular grooves, said members being positioned such that a first end of each is adjacent to the other, each groove having a generally arcuate cross-section and [laying in a respective plane generally perpendicular to said central axis, each one of said outer grooves having] a ~~generally constant~~ radius measured from said central axis, wherein the radius of [whereby] each said outer groove on a respective connecting member [has a] is greater [radius] than the radius of each adjacent outer groove closer to said first end on said respective connecting member;

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a collar coaxially aligned with said connecting members and adapted to receive and fit around said connecting members, said collar having a plurality of inner annular grooves each having a generally arcuate cross-section and [laying in a respective plane generally perpendicular to said central axis] a generally constant radius measured from said central axis, wherein the radius of each said inner groove is greater than the radius of each adjacent inner groove closer to said first end of each said connecting member, said inner grooves each corresponding to one of said outer grooves and forming therewith an arcuate race; and

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Sub 12
a plurality of ball bearings received in each race to facilitate relative rotation of said connecting members and said collar about said central axis.

Please add the following new claims:

Sub 13
18. A bearing assembly according to claim 1, wherein each said outer groove has a section located at the apex of the generally arcuate cross-section comprising a straight line segment.

Sub 19
B3
19. A swivel joint comprising:
a central axis;
a male connector having an outer annular surface, a first end and at least first and second outer annular grooves formed on the outer surface concentric with the central axis;
a female connector having an inner annular recess and at least first and second inner annular grooves formed on the inner recess concentric with the central axis;
wherein the inner recess is adapted to receive and overlap the outer surface such that each inner groove is in alignment with a corresponding outer groove to thereby define at least first and second arcuate races;
wherein the diameter of each arcuate race is greater than the diameter of each adjacent arcuate race closer to the first end of the male connector; and
a plurality of ball bearings received in each race to facilitate relative rotation of the male and female connectors about the central axis.